

### REMARKS

The above amendments and below remarks are presented in response to the Office Action of October 8, 2004. No new matter has been added. Reconsideration of the above-referenced application is respectfully requested.

#### Claim Rejections - 35 USC § 103

Claims 1-4, 6-14 and 17-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmi et al., in view Petit.

Regarding claims 1, 9, 11-12, 22-23, the Examiner states that: *"Ohmi et al., discloses a tightening device with features of the claimed invention for tightening a nut in relation to a main shaft supported on bearings; and, means for detecting the tightening torque (see for example, claim 9)."*

While Applicants agree that Ohmi et al discloses a "tightening device", Applicants respectfully disagree that Ohmi et al. discloses the claimed invention. It should first be understood that a tightening device is only a portion of the claimed invention. The claimed delashing assembly includes a number of elements, one of which is a tightening device. For example, as shown in FIG. 2 of the present application, the delashing assembly 200 may include a tightening device 202, as well as a wireless interface 218, a motor drive 208, a torque nut 224, a main shaft 116, etc.

Claim 1 has been canceled without prejudice, and therefore the rejection of this claim is rendered moot.

Claim 9 has been rewritten in independent form to include the subject matter of claim 1. Claim 9 recites a delashing assembly, which the tightening device of Ohmi et al. is not. Claim 9 further recites, in part, that the tightening device rotates with a shaft assembly, the shaft assembly including the main shaft. The Examiner does not point to what constitutes the "shaft" until there is a discussion of claims 13-14, 17-20, where it is stated that *"the shaft 14 can be considered as main shaft and the nut 36 can be considered as main nut."* It is respectfully noted that the shaft 14 is part of the tightening device disclosed by Ohmi et al, and therefore cannot constitute an element separate from the recited tightening device. Furthermore, within Ohmi et al., the nut 36 is not tightened in relation to the shaft 14. Instead, the nut 36 is tightened in relation to the threaded member 35. While Claim 9 recites

the tightening device rotating with the shaft assembly, Ohmi et al. does not disclose such an assembly. The tightening device (e.g. FIGS. 1-2) of Ohmi et al. does not rotate with the shaft (threaded member 35). On the contrary, the threaded member 35 is prevented from rotation when fitted into the tightening device (e.g., Col. 3, lines 51-53, Col. 3, lines 66-67, Col. 9, lines 61-63). Claim 9 further recites "*a tightening interface attached to the nut on the main shaft for tightening or loosening the nut on the main shaft while rotating with the shaft assembly.*" The nut 36 of Ohmi et al. is certainly not tightened or loosened on the shaft 14, although it may be tightened on the threaded member 35. However, the threaded member 35 does not rotate at all with any sort of tightening interface on the tightening device of Ohmi et al., and therefore cannot possibly read on Claim 9.

Claim 9 further recites a wireless interface, wherein torque information is received by the tightening device over the wireless interface. The Examiner admits that Ohmi et al. does not disclose a wireless interface, and turns to Petit to teach a tightening tool 1 and a case 7 for receiving radiation and displaying the torque values. It is noted that while the case 7 may receive torque information from the tightening tool 1, the tightening tool 1 never receives any sort of torque information from the case 7 over the wireless interface. Thus, there is no teaching for "wherein torque information is received by the tightening device over the wireless interface" (emphasis added). Thus, the only teaching provided is one wherein torque information is not received by a tightening device, and therefore neither Petit nor Ohmi et al. provide a teaching for a tightening device receiving torque information over a wireless interface.

Thus, the prior art, either taken alone or in combination, fails to disclose both a tightening device that rotates with a shaft upon which a nut is being tightened, and a tightening device that receives torque information over a wireless interface. For at least these reasons, it is respectfully submitted that Claim 9 is not made obvious over Ohmi et al. in view of Petit, and allowance of Claim 9 is respectfully requested.

Claims 11-12 have been canceled without prejudice, and therefore the rejection of these claims is rendered moot.

Claim 22 has been amended to recite that the method of delashing a shaft assembly includes rotating the main shaft and sending torque information from a second end of the main shaft to the tightening device over a wireless interface. It is clarified within Claim 22 that the main shaft includes a nut that is to be tightened or loosed thereon by the tightening device, and therefore the shaft 14 of Ohmi et al. would be unreadable upon the main shaft of Claim 22. The only element within Ohmi et al. that would be readable on a shaft that has a

nut to be tightened by a tightening device would be the threaded member 35. However, Ohmi et al. does not disclose rotation of the threaded member 35, nor does Ohmi et al. disclose sending torque information from a second end of the threaded member 35 to a tightening device located on a first end of the threaded member 35. Petit does not remedy the deficiencies of Ohmi with respect to these two features. While Petit may disclose a case 7 for receiving radiation from a tool and displaying the torque values, Petit does not teach sending torque information to a tightening device, nor does the disclosure of Petit make at all obvious sending torque information from a second end of a shaft to a first end of a shaft. For at least these reasons, it is respectfully submitted that Ohmi et al. and Petit do not disclose nor make obvious Claim 22, and the claims that depend upon Claim 22, which are Claims 23-24.

Claim 23 further recites the method of sending torque information from the tightening device to the second end of the main shaft over the wireless interface. While Petit does disclose radiation from the tightening tool 1 to the case 7, the case 7 does not constitute a second end of a shaft upon which the nut is being tightened, and therefore there is no teaching within Petit to modify Ohmi et al. to send torque information from the tightening device to the second end of the threaded member 35 over a wireless interface. Thus, it is respectfully submitted that Claim 23 further defines Claim 22 over the prior art, and allowance is respectfully requested.

Regarding claims 2-3, the Examiner notes that "*Ohmi et al., shows the use of a motor drive means (see claim 7).*" Claim 2, which has been rewritten in independent form, recites that the motor is used for rotating the main shaft. Again, while the Examiner has suggested that shaft 14 may read on the shaft of these claims, it is again respectfully noted that the shaft 14 is actually a part of the tightening device of Ohmi et al., and therefore cannot be read as a separate element from the tightening device. Claim 2 recites a tightening device for tightening a nut onto a main shaft supported on bearings. Again, the only logical "shaft" within Ohmi et al. that could be read on this claim would be the threaded member 35 upon which the nut 36 is tightened. However, the threaded member 35 is not supported on bearings, nor is there a motor drive used for rotating the threaded member 35.

The motor 19 of Ohmi et al. is also a part of the tightening device, and again cannot constitute a separate element from its tightening device. Also, the motor 19 is in no way associated with the threaded member 35 onto which the nut 36 is tightened, therefore the motor 19 cannot be used to read on the recited motor drive. Furthermore, it would not have been obvious to modify the Ohmi et al. reference to include a motor drive for rotating the main shaft, because the threaded member 35 is intentionally prevented from rotation when

positioned with respect to the tightening device of Ohmi et al.

Claim 2 further recites a torque sensor associated with the motor drive. Since the recited motor drive is used for rotating the main shaft, and since the main shaft is recited as receiving the tightened nut, Ohmi et al. fails to read on the recited torque sensor. It is respectfully noted that the torque sensor 28 within Ohmi et al. is not in any way associated with a motor used for rotating the threaded member 35 and therefore cannot fairly read on Claim 2.

Additionally, Claim 2 recites that torque information from the motor drive and torque sensor is sent to the tightening device over a wireless interface. While Petit has been used to teach the sending of torque information from a tightening tool, Petit fails to teach the sending of torque information to a tightening device, and therefore Petit does not remedy the deficiencies of Ohmi with respect to Claim 2. Furthermore, the sending of torque information from an end of the threaded member 35 to the tightening device of Ohmi et al. is not rendered even remotely obvious.

For at least these reasons, it is respectfully submitted that Claim 2, and also dependent Claim 3, patentably define over Ohmi et al., and allowance is respectfully requested.

It is further noted that Claim 3 further patentably defines the delashing assembly of claim 2 over the prior art by reciting that the motor drive is positioned adjacent a second end of the main shaft and the tightening device is positioned adjacent a first and opposite end of the main shaft. This feature is certainly not shown in Ohmi et al., nor taught by Petit, as neither reference deals with the shaft upon which the nut is being tightened upon.

Regarding claims 4, 6, and 24, the Examiner suggests that *"Petit teaches a first and second wireless devices as transmitter and receiver."*

Claim 4 has been canceled without prejudice and incorporated into Claim 5, and therefore the rejection of this claim is rendered moot.

Claim 6 has been amended to depend upon Claim 5, which has been deemed allowable by the Examiner, and therefore Claim 6 should also be deemed allowable over the prior art.

Claim 24 is dependent on Claim 22, which is respectfully submitted as being allowable for the reasons presented in the paragraph addressing Claim 22 above. While the Examiner has turned to Petit again to teach the missing elements of Ohmi, it is respectfully submitted that Petit fails to teach one of ordinary skill in the art the modification of Ohmi et al. to *"providing a drive motor with associated torque sensor on the second end of the main shaft; and, sending torque information from the torque sensor to the second wireless*

*communication device*" when the main shaft is defined as the shaft upon which the torque nut is tightened or loosened. The main shaft cannot be item 14 within Ohmi et al., because a torque nut is not tightened or loosened upon shaft 14. The only item within Ohmi et al. upon which a nut is tightened or loosened is threaded member 35, however Ohmi et al. does not disclose, nor does Petit teach, the method of providing a motor on an end of the threaded member 35 and sending torque information from the motor's torque sensor to a second wireless communication device. For at least these reasons, in addition to the reasons presented above with respect to Claim 22, it is respectfully submitted that the combination of Ohmi et al. and Petit does not render Claim 24 obvious, and allowance of Claim 24 is respectfully requested.

Regarding claims 7-8 and 10 it is noted that these claims now depend from allowable Claim 5, and therefore the rejection of these claims is rendered moot.

Regarding claims 13-14 and 17-20 the Examiner suggests that *"the shaft 14 can be considered as main shaft and the nut 36 can be considered as main nut."*

Claim 13 has been amended to incorporate the subject matter of Claim 19. It is respectfully submitted that the combination of Ohmi et al. and Petit fail to disclose or render Claim 13 obvious because Ohmi et al. does not disclose a main shaft, upon which a torque nut is tightened upon, having a tightening device associated with its first end and torque information sent from its second end to the tightening device (on the first end) via a wireless interface. *Even if* Petit discloses the transmission of torque information from a tightening tool to a case, that does not render obvious the transmission of torque information from a shaft end, upon which a nut is being tightened, to a tightening device located on an opposite end of the shaft. Thus, it is respectfully submitted that Claim 13, and the claims that depend upon Claim 13, including claims 14-18 and 20, patentably define over the prior art and allowance is respectfully requested.

As for Claim 14, it is respectfully submitted that Ohmi et al. does not disclose a motor drive for rotating the main shaft. Again, since the main shaft is defined as that element upon which a torque nut is tightened upon, the only "shaft-like" element upon which a nut is tightened upon is the threaded member 35 and Ohmi et al. does not disclose the rotation of the threaded member 35. On the contrary, Ohmi et al. discloses the prevention of rotation of the threaded member 35.

As for Claim 17, Ohmi et al. does not disclose the rotation of the tightening device with the main shaft. In particular, Claim 17 recites *"the tightening interface attached to the torque not on the main shaft for tightening or loosening the torque nut*

*on the main shaft while rotating with the main shaft."* The only element that a nut is tightened or loosened upon within Ohmi et al. is the threaded member 35, and that element is not rotated, and therefore cannot read on Claim 17.

As for Claim 20, it is again noted that the main shaft is defined within Claim 13 as having a torque nut tightened or loosened thereon, and therefore when Claim 20 recites "a drive motor and torque sensor positioned on the second end of the main shaft", Ohmi et al. fails to disclose this feature because there is no motor/torque sensor positioned on the second end of a shaft upon which a torque nut is tightened or loosened. Furthermore, Ohmi et al. fails to disclose sending torque information from a first end of such a shaft to a second end of such a shaft. Because Petit only teaches a tightening device and a related case, Petit does not deal with any sort of shaft that the tightening device might deal with, and therefore cannot teach the transmission of information to and from ends of such a shaft. For at least these reasons, it is respectfully submitted that Claim 20 further patentably defines Claim 13 over the prior art and allowance is respectfully requested.

**Allowable Subject Matter**

It is noted with appreciation that Claims 5 and 15-16 stand objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims due to the inclusion of two receivers and two transmitters.

Claim 5 has been rewritten in independent form, and Claims 6-8 and 10 depend from Claim 5. Thus, it is respectfully submitted that Claims 5-8 and 10 should be deemed allowable over the prior art.

Claims 15-16 depend from Claim 13, which is submitted as being allowable for the reasons described above with respect to Claim 13, and therefore it is respectfully submitted that Claims 15-16 should still be deemed to contain allowable subject matter.

**CONCLUSION**

It is believed that the foregoing amendments and remarks are fully responsive to the Office Action and that the pending claims, claims 2-3, 5-10, 13-18, 20, and 22-24 herein should be allowable to the Applicant.

In the event the Examiner has any queries regarding the instantly submitted response, the undersigned respectfully request the courtesy of a telephone conference to discuss any matters in need of attention.

Although fees are dealt with in a separate transmittal sheet, if there are additional charges with respect to this matter or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully Submitted,

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Date: December 27, 2004